

UNITED STATES DISTRICT COURT FOR THE  
DISTRICT OF NEW HAMPSHIRE

Hypertherm, Inc.

v.

Civil No. 05-cv-373-JD

American Torch Tip Company

O R D E R

Hypertherm, Inc. alleges that certain replacement parts manufactured and sold by American Torch Tip Company ("ATTC") infringe five of Hypertherm's patents, United States Patents No. 7,019,255 ("255 patent"), No. 6,946,617 ("617 patent"), No. 6,207,923 ("923 patent"), No. 5,977,510 ("510 patent"), and No. 5,310,988 ("988 patent"). ATTC denies that its products infringe and also asserts that several of the patents are invalid due to obviousness. Hypertherm moves to preclude the testimony of ATTC's expert witness, James Sprague, on the ground that he is not qualified to give opinions on infringement or obviousness. A hearing was held on Hypertherm's motion on February 24, 2009.

Standard of Review

A witness may give opinion testimony at trial if technical knowledge will assist the factfinder and if the "witness is qualified as an expert by knowledge, skill, experience, training, or education . . . ." Fed. R. Evid. 702. A qualified expert may

testify in the form of opinions “if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.” Id. “The court, in its role as gatekeeper, must exclude expert testimony that is not reliable and not specialized, and which invades the province of the jury to find facts and that of the court to make ultimate legal conclusions.” Sundance, Inc. v. DeMonte Fabricating Ltd., 550 F.3d 1356, 1364 (Fed. Cir. 2008).

To testify as a technical expert on issues of patent infringement and invalidity, the witness must be “qualified as an expert in the pertinent art.” Id. at 1363; see also Levin v. Dalva Bros., Inc., 459 F.3d 68, 78-79 (1st Cir. 2006) (excluding expert’s opinion identifying antique clock because witness lacked experience in authenticating furniture of particular era through visual examination). The proponent of expert testimony bears the burden of showing, by a preponderance of the evidence, that the expert is qualified under Rule 702. See Fed. R. Evid. 104(a); Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 592 n.10 (1993).

### Background

In the specifications of the five patents in suit, the field of invention is described, generally, as "plasma arc torch systems and processes," "plasma arc cutting torches," or "plasma arc torches." More specifically, the '617 and '255 patents relate to "liquid cooled electrodes and coolant tubes for use in a plasma arc torch." The '988 patent relates "to an improved electrode and insert cooling method for use in low current, high definition torches." The '510 patent relates "to an improved nozzle for use in plasma arc torches," and the '923 patent relates "to plasma arc torches having a torch tip designed to produce a substantially columnar shield flow that surrounds the plasma arc without substantially interfering with the plasma arc."

James Sprague holds a Ph.D. in mechanical engineering. He has work experience at Goodyear Tire and Rubber Company designing air springs, conveyor belting, racing tires, testing equipment, and manufacturing machines. He has additional experience in dynamic simulation of mechanisms and code enhancement for simulation software; and in design and analysis of machines, mechanisms, and vehicles. He has worked in the areas of machine testing and machine failure and in accident reconstruction. He has lectured in mechanical engineering and has taken a course in

forensic engineering. He is currently employed as vice president at Packer Engineering, Inc., which provides engineering consultant services.

At the hearing, Sprague explained that he prepared for his role as an expert witness in this case by studying the patents in suit until he understood the relationships of the parts and what was described in the patents. Sprague described certain electrodes and related parts, which were introduced as exhibits. He also noted the particular problems the inventions were designed to address.

Sprague acknowledged, and ATTC concedes, that he has no experience or training in plasma arc cutting torches or their consumable parts. He has no experience or training in plasma arc technology. Instead, Sprague based his opinions on patent infringement and invalidity by gaining an understanding of the patents through reading and studying them, which was informed by his background in basic mechanical engineering principles, such as geometry, fluid flow, and heat transfer. He also reviewed materials provided to him by counsel for ATTC. Based on that background, Sprague offers opinions that ATTC's accused products do not infringe the patents in suit and that certain of the inventions would have been obvious at the time the patents issued, making the patents invalid.

Hypertherm called Aaron Brandt, who is an engineer at Hypertherm and a named inventor of the '255 and '617 patents, to testify at the hearing about the level of skill required to work at the engineering level in the field of plasma arc torches and cutting systems. Brandt was allowed to testify, over ATTC's objection, about the education and experience of those who work with him in the field of plasma arc torch technology.

Brandt testified that he and the other inventors of the patents in suit had engineering degrees, some with advanced degrees, including Ph.D.s in plasma physics. All of the inventors had at least several years of experience in the field of plasma cutting technology and some had as much as twenty years of experience. Brandt testified that he had a master's degree in mechanical engineering with a focus in fluid mechanics and a background in laser cutting when he began work at Hypertherm. Despite that background, it took him fourteen months of work to become familiar with plasma arc technology.

Brandt described the problems encountered in plasma arc cutting systems and the processes his engineering team used to invent new technology. The engineering problems in plasma arc cutting systems include the high temperatures, high current, and high voltage involved in the systems. Given those circumstances, alignment of various parts is challenging where close alignment

may increase the life of the part but the high voltage requires more space. On cross examination, Brandt explained that the physics involved in plasma arc torches is specific to the technology, noting that fluid mechanics differs from plasma mechanics.

#### Discussion

ATTC contends that its witness, James Sprague, is qualified, based on his education and experience in mechanical engineering, to give opinions on patent infringement and obviousness in this case. ATTC also asserted at the hearing that Hypertherm's motion challenging Sprague's qualifications was untimely and failed to notify ATTC that it would also challenge Sprague's methodology. Hypertherm argues that Sprague lacks the necessary background in plasma arc torches and cutting systems to be qualified as an expert on the patents and products at issue in this case.

#### I. Challenges to Motion

ATTC asserts that Hypertherm's motion to preclude Sprague's testimony was untimely and also objected to Hypertherm's examination, at the hearing, of Sprague's methodology. The scheduling order in this case required the parties to file motions challenging expert testimony forty-five days before

trial. Trial was scheduled for February 18, 2009.<sup>1</sup> Therefore, forty-five days prior to trial was January 5, 2009. See Fed. R. Civ. P. 6(a). Hypertherm's motion challenging Sprague's testimony was filed on January 5, 2009. Therefore, it was timely filed. See also Feliciano-Hill v. Principi, 439 F.3d 18, 24 (1st Cir. 2006) (holding that parties have an obligation to object to an expert in a timely fashion, that is, before trial).

ATTC also objected at the hearing that Hypertherm had not challenged Sprague's methodology in its motion and should not be permitted to question Sprague about methodology. In its motion, Hypertherm argued that Sprague's opinion of invalidity of the '988 patent was not admissible because it was based on counsel's representations and Sprague's unfounded assumptions. Because ATTC is correct that Hypertherm did not raise methodology as a general basis to exclude Sprague's opinions, consideration of methodology is limited to the issue raised in the motion.

The primary issue is whether Sprague is qualified by his knowledge, skill, experience, training, or education to give opinions on infringement and validity of the patents in suit.

---

<sup>1</sup>Although the trial date has been continued to April 27, 2009, all of the deadlines counted from the trial date or the final pretrial conference date are based on the February 18, 2009, trial date. The continuance of the trial does not extend the time for the parties to file pretrial motions.

## II. Qualification

The Federal Circuit recently addressed the standard for qualifying a technical expert witness to testify on patent infringement and validity. In Sundance, the plaintiff charged the defendant with infringing claim 1 of its patent for “retractable segmented covering systems.” 550 F.3d at 1358. The defendant disclosed an expert witness, who was a patent lawyer and had practiced only briefly as an engineer, to testify about Patent Office practices, claim construction, noninfringement, invalidity, and inequitable conduct. Id. at 1360-61. The plaintiff objected to the witness’s testimony at trial on issues of infringement and invalidity on the ground that he was not qualified to testify as a technical expert. Id. The district court, however, allowed the expert testimony.

On appeal, the Federal Circuit held that, contrary to the district court’s decision, the witness was not qualified to testify on the issues of infringement or validity.<sup>2</sup> Id. at 1361. The court noted that the issues of infringement and validity “are

---

<sup>2</sup>At the hearing, counsel for ATTC mistakenly characterized the holding in Sundance as affirming the district court’s decision to preclude the defendant’s expert from testifying on technical matters because the expert was not disclosed as a technical expert. Counsel then represented that the Federal Circuit’s discussion of expert qualifications was merely dicta. The court will assume that counsel’s mistake was due to a less than thorough reading of the case.



analyzed in great part from the perspective of a person of ordinary skill in the art, and testimony explaining the technical evidence from that perspective may be of great utility to the factfinder.” Id. In contrast, the court found that the defendant’s witness had “no experience whatsoever in the field of tarps or covers” and that the defendant failed to show that the witness’s “experience with engines and the like is sufficiently related to covers.” Id. at 1362. The court stated that “[a]dmitting testimony from a person such as [the witness], with no skill in the pertinent art, serves only to cause mischief and confuse the factfinder.” Id. In conclusion, the court stated: “We hold that it is an abuse of discretion to permit a witness to testify as an expert on the issues of noninfringement or invalidity unless that witness is qualified as an expert in the pertinent art.”<sup>3</sup>

---

<sup>3</sup>Similarly, in Centricut, LLC v. Esab Group, LLC, 390 F.3d 1361 (Fed. Cir. 2004), a case involving infringement of a patent pertaining to a plasma arc torch electrode, proof of infringement required showing that the accused electrode met the work function claim in the asserted patent. Work function was defined as “the potential step, measured in electron volts, which permits thermionic emission from the surface of a metal at a given temperature.” Id. at 1364 (internal quotation marks omitted). The patent holder, Esab, offered the testimony of the patent inventor to prove infringement. Id. at 1368. The inventor, however, admitted that he was not an expert on work function, and therefore, the court did not credit his testimony. Id.

A. Pertinent Art

ATTC contends that the pertinent art for purposes of qualifying an expert to testify on invalidity and infringement of the patents in this case is the consumable parts that are the subject matter of the patents in suit and that the relevant technological field is mechanical engineering as it relates to the design and manufacture of consumable parts. ATTC further contends that “[t]his technological field is analogous to that of spare parts for cars.” Hypertherm defines the pertinent art as plasma arc torch and consumable technology and plasma arc cutting technology.

In Sundance, the Federal Circuit described the pertinent art as tarps or covers and cover systems, based on the subject of the patent claims. 550 F.3d at 1362. In Centricut, the pertinent art was the work function of electrode components, as claimed in the patent. 390 F.3d at 1368. Here, the patents describe the field of the invention generally, as “plasma arc torch systems and processes,” “plasma arc cutting torches,” or “plasma arc torches.” The patents also describe the pertinent art more specifically as “liquid cooled electrodes and coolant tubes for use in a plasma arc torch,” “an improved electrode and insert cooling method for use in low current, high definition torches,” “an improved nozzle for use in plasma arc torches,” and “plasma

arc torches having a torch tip designed to produce a substantially columnar shield flow that surrounds the plasma arc without substantially interfering with the plasma arc."

Therefore, based on the patents themselves, the pertinent art is liquid cooled electrodes used in plasma arc torches, an insert cooling method used in low current, high definition plasma arc torches, nozzles for plasma arc torches, and plasma arc torch tip design. More generally, the pertinent art is plasma arc torch systems and processes.

B. James Sprague

As demonstrated by his curriculum vitae and his testimony at the hearing, Sprague holds a Ph.D. in mechanical engineering and has worked in various aspects of mechanical engineering for twenty-five years. Neither his education nor his experience in the field of mechanical engineering has included the design or manufacture of plasma arch torches or any of their consumable parts, such as electrodes. Sprague, admittedly, has no experience or training in the field of plasma arc torches or the consumable parts at issue in this case. The basis of Sprague's opinions on the issues of patent infringement and validity is his knowledge of the principles of mechanical engineering and his understanding of the patents in suit derived from reading and

studying the patents themselves and from materials provided to him by counsel.

ATTC argues that Sprague's level of education in mechanical engineering and his extensive experience in mechanical design of machine tools and in parts fabrication provide a sufficient basis for his expertise in this case.<sup>4</sup> The complexity of the technology of plasma arc torches and their consumable parts is apparent from the patents themselves, from examination of a cutaway view of a torch, and from the component parts provided by ATTC and described by Sprague at the hearing. Given the complex technology, ATTC has not shown that Sprague's general mechanical engineering background qualifies him as one who is skilled in the pertinent art of plasma arc torches and their consumable parts.<sup>5</sup>

---

<sup>4</sup>ATTC also attempts to bolster Sprague's credentials by comparing him to Hypertherm's technical expert witness, E. Smith Reed, who had only a bachelor's degree in mechanical engineering when he began working at Centricut, a company that designed and manufactured consumable parts for plasma arc torches. ATTC states that after working at Centricut for under four years, Reed was able to re-engineer and design consumable parts, which ATTC contends shows that no special knowledge or experience is necessary for expertise in the field of torch consumables. Reed's experience working in the plasma torch field, however, distinguishes him from Sprague, who has no experience.

<sup>5</sup>Even if they were deemed to be applicable for measuring the qualifications of a technical expert witness, it is not necessary here to consider the factors used to determine the hypothetical person with ordinary skill in the art, which is part of an obviousness analysis. See, e.g., Ruiz v. A.B. Chance Co., 234

In addition, at the hearing, Sprague had difficulty recalling the opinions he expressed in his report. When asked about his opinion on obviousness, he testified that there were many legal opinions in his report and that he was not comfortable "reciting" those opinions without reading from the report. When asked about his opinion on infringement, he again said he was not comfortable stating his opinion on infringement without referring to his report and was not willing to summarize his opinion. Sprague's apparent lack of familiarity with his own opinions undermines the understanding he claims to have of the pertinent art and the subjects at issue in this case.

Based on the record presented for purposes of evaluating Sprague's qualifications to testify under Rule 702, ATTC has not shown that Sprague is skilled in the pertinent art of plasma arc torches and their parts, which are at issue in the patents in suit. A witness will not be permitted to testify as a technical expert on the issues of patent infringement and validity unless he is shown to be skilled in the pertinent art. Therefore, Sprague will not be permitted to testify at trial as a technical expert on the issues of patent infringement and validity.

---

F.3d 654, 666-67 (Fed. Cir. 2000)

Conclusion

For the foregoing reasons, the plaintiff's motion to preclude the testimony of the defendant's technical expert witness (document no. 401) is granted.

SO ORDERED.

/s/Joseph A. DiClerico, Jr.

Joseph A. DiClerico, Jr.  
United States District Judge

February 27, 2009

cc: Jill C. Anderson, Esq.  
Jacob K. Baron, Esq.  
Steven M. Bauer, Esq.  
Lucas M. Blower, Esq.  
Colin G. Cabral, Esq.  
Seth M. Cannon, Esq.  
Joseph A. Capraro, Jr., Esq.  
Christopher J. Carney, Esq.  
Jeffery M. Cross, Esq.  
Joseph T. Dattilo, Esq.  
Maia H. Harris, Esq.  
Marc H. Kallish, Esq.  
Rhett R. Krulla, Esq.  
Jonathan A. Lax, Esq.  
Edward F. McCormack, Esq.

Richard C. Nelson, Esq.  
W. Scott O'Connell, Esq.  
Jeremy P. Occek, Esq.  
Richard D. Rochford, Jr., Esq.  
David W. Ruoff, Esq.  
John T. Shapiro, Esq.  
John M. Skeriotis, Esq.  
Benjamin M. Stern, Esq.  
Wayne Tang, Esq.